

Application: 09/436,432
Filed: November 8, 1999
In Response to Office Action of: September 22, 2006
Response Dated: December 22, 2006

II. IN THE CLAIMS

8. This listing of claims will replace all prior versions, and listings, of claims in the application:

III. LISTING OF CLAIMS

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
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16. (cancelled)
17. (cancelled)
18. (cancelled)

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19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (cancelled)

24. (cancelled)

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28. (cancelled)

29. (cancelled)

30. (cancelled)

31. (cancelled)

32. (cancelled)

33. (cancelled)

34. (cancelled)

35. (cancelled)

36. (currently amended) A method of transmitting a video stream of images over a computer network from a first location to a second location in a first digitally compressed format and then retransmitting, based on one or more actions of a user at the second location, at least a portion of the video stream of images in a higher quality second digitally compressed format, the method comprising the steps of:

- a) generating a plurality of images at a video source device at the first location;
- b) transferring the plurality of images from the video source device to a transmitting device in an original video format as a stream of video images;
- c) saving the plurality of images from the video source device on the transmitting device as a first saved stream of video images;
- d) converting the stream of video images from the original video format to the first digitally compressed format as each image is received from the video source device at the transmitting device,

wherein the first digitally compressed format is a storage-efficient and transmission-efficient format having lower quality than the second digitally compressed format,

wherein the frames of the video stream in the first digitally compressed format contain significantly less information than the second digitally compressed format;
- e) transmitting the video stream of images in the first digitally compressed format over ~~a~~ the computer network from the transmitting device to a receiving device at the second location;
- f) saving the video stream of images in the first digitally compressed format on the receiving device at the second location as a second saved stream of video images;
- g) decompressing the video stream of images in the first digitally compressed format at the receiving device;

- h) displaying the decompressed video stream of images on a display device to a the user at the second location as the video stream of images in the first digitally compressed format is being received at the second location;
 - i) marking a portion of the displayed stream of video images at the second location based on one or more actions of the user;
 - j) returning a request over the computer network from the receiving device to the transmitting device for an enhanced version of the marked portion of the video stream of images;
 - k) processing, at the transmitting device, the request for an enhanced version of the marked portion of the video stream of images to determine a subset of images from the saved stream of video images;
 - l) converting at least the subset of images to the enhanced second digitally compressed format;
- wherein the second digitally compressed format is a less storage-efficient and less transmission-efficient format having higher quality than the first digitally compressed format,
- wherein the frames of the video stream in the second digitally compressed format contain significantly more information than the first digitally compressed format,
- and
- wherein the frames of the video stream in the second digital compressed format contain substantially the same quality of information contained in first saved stream of video images;

- m) transmitting the subset of images in the enhanced second digitally compressed format, corresponding to the marked portion of the video stream of images, over a computer network from the transmitting device to the receiving device at the second location;
- n) saving the subset of images in the second digitally compressed format on the receiving device at the second location;
- o) decompressing the subset of images in the second digitally compressed format at the receiving device; and
- p) displaying the decompressed subset of images in an enhanced decompressed quality on the display device to the user at the second location while the video stream of images in the first digitally compressed format continues to be received at the second location;

wherein the first location is distinct and remote from the second location, whereby the user at second location views a low quality version of the stream of video images while they are being transmitted, a portion of the displayed video is marked, the marked portion is retransmitted and displayed in higher quality, and the user views the retransmitted portion in higher quality while transmission of the low quality stream of video images continues.

37. (previously presented) The method of claim 36 wherein the subset of images in second digitally compressed format received at the second location replaces the corresponding portion of the second saved stream of video images in the first digitally compressed format on the receiving device.

38. (previously presented) The method of claim 36 wherein the transmitting device is a server in a third location distinct and remote from each of the first and second locations.
39. (previously presented) The method of claim 36 wherein step of marking a portion of the displayed stream of video images at the second location is based on the user actions of:
- i) marking a starting image frame;
 - ii) marking an ending image frame; and
 - iii) selecting the enhance function;
- whereby the user explicitly marks and requests the portion to be retransmitted.
40. (currently amended) The method of claim 36 wherein step of marking a portion of the displayed stream of video images at the second location is based on the user actions of:
- i) rewinding the displayed stream of video images; and
 - ii) viewing for a predetermined period of time ~~an~~ a previously displayed portion of the stream of video images;
- wherein the request is implied by the actions of the user,
- whereby the user implicitly marks and requests the portion to be retransmitted.
41. (cancelled)
42. (cancelled)
43. (cancelled)
44. (cancelled)

45. (previously presented) The method as claimed in claim 36 wherein the step of generating is performed by a medical test device which is one of the group of an ultrasound, sonogram and echocardiogram device.
46. (previously presented) The method as claimed in claim 36 wherein the step of transferring is performed over an analog video connection.
47. (previously presented) The method as claimed in claim 46 wherein the analog video connection is S-video.
48. (previously presented) The method as claimed in claim 36 wherein the step of transferring is performed over a digital video connection.
49. (previously presented) The method as claimed in claim 36 further comprising a step of adding annotations to at least one image at the second location.
50. (previously presented) The method as claimed in claim 36 wherein if the request for an enhanced version is received while the step of transmitting the video stream of images in the first digitally compressed format is being performed, then the transmission of the video stream of images in the first digitally compressed format is paused while the step of transmitting the subset of images is performed, and resumed once the step of transmitting the subset of images is completed.
51. (currently amended) A method of transmitting a video stream of images over a computer network from a first location to a second location in a first digitally compressed format and then retransmitting, based on one or more actions of a user at the second location, at least a portion of the video stream of images in a higher quality second digitally compressed format, the method comprising the steps of:

- a) generating a plurality of images at a video source device at the first location;
- b) transferring the plurality of images from the video source device to a transmitting device in an original video format as a stream of video images;
- c) converting the stream of video images from the original video format to the first digitally compressed format at the transmitting device;
wherein the first digitally compressed format is a storage-efficient and transmission-efficient format having lower quality than the second digitally compressed format,
wherein the frames of the video stream in the first digitally compressed format contain significantly less information than the second digitally compressed format;
- d) transmitting the video stream of images in the first digitally compressed format over a the computer network from the transmitting device to a receiving device at the second location;
- e) decompressing the video stream of images in the first digitally compressed format at the receiving device;
- f) displaying the decompressed video stream of images on a display device to the user at the second location;
- g) marking a portion of the displayed stream of video images at the second location based on one or more actions of the user;

- h) returning a request over the computer network from the receiving device to the transmitting device for an enhanced version of the marked portion of the video stream of images;
- i) processing, at the transmitting device, the request for an enhanced version of the marked portion of the video stream of images to determine a subset of images from the stream of video images in the original video format;
- j) converting at least the subset of images to the enhanced second digitally compressed format;

wherein the second digitally compressed format is a less storage-efficient and less transmission-efficient format having higher quality than the first digitally compressed format,

wherein the frames of the video stream in the second digitally compressed format contain significantly more information than the first digitally compressed format,

and

wherein the frames of the video stream in the second digital compressed format contain substantially the same quality of information contained in the stream of video images in the original video format;
- k) transmitting the subset of images in the enhanced second digitally compressed format, corresponding to the marked portion of the video stream of images, over a the computer network from the transmitting device to the receiving device at the second location;

l) decompressing the subset of images in the second digitally compressed format at the receiving device; and

m) displaying the decompressed subset of images in an enhanced decompressed quality on the display device to the user at the second location;

wherein the first location is distinct and remote from the second location,

whereby the user at second location views a low quality version of the stream of video images, a portion of the displayed video is marked, the marked portion is retransmitted and displayed in higher quality, and the user views the retransmitted portion in higher quality.

52. (previously presented) The method of claim 51 wherein the subset of images in the second digitally compressed format received at the second location replaces the corresponding portion of the stream of video images in the first digitally compressed format on the receiving device forming an enhanced local movie with at least one enhanced portion.

53. (previously presented) The method of claim 52 wherein the local enhanced movie comprises a first and second subset of images in the second digitally compressed format and wherein the first subset is marked with at least a first mark and the second subset is marked with at least a second mark, the method further comprising a step of skipping from one mark to another mark.

54. (previously presented) The method of claim 52 wherein the enhanced local movie comprises a first mark at the beginning of the subset of images in the second digitally

compressed format and a second mark at the end of said subset, the method further comprising a step of skipping from one mark to the other mark.

55. (previously presented) The method of claim 51 wherein the transmitting device is a server in a third location distinct and remote from each of the first and second locations.

56. (previously presented) The method of claim 51 wherein step of marking a portion of the displayed stream of video images at the second location is based on the user actions of:

- i) marking a starting image frame;
- ii) marking an ending image frame; and
- iii) selecting the enhance function;

whereby the user explicitly marks and requests the portion to be retransmitted.

57. (previously presented) The method of claim 56 further comprising a step of skipping from one mark to another mark.

58. (previously presented) The method of claim 51 wherein step of marking a portion of the displayed stream of video images at the second location is based on the user actions of:

- i) rewinding the displayed stream of video images; and
- ii) viewing for a predetermined period of time an previously displayed portion of the stream of video images;

wherein the request is implied by the actions of the user,

whereby the user implicitly marks and requests the portion to be retransmitted.

59. (previously presented) The method of claim 51 further comprising a step saving the plurality of images for the video source device on the transmitting device.
60. (previously presented) The method of claim 51 further comprising a step saving the video stream of images in the first digitally compressed format on the receiving device at the second location as a local movie.
61. (previously presented) The method of claim 51 further comprising a step saving the subset of images in the second digitally compressed format on the receiving device at the second location as an enhanced local movie.
62. (previously presented) The method of claim 51 wherein step of converting the stream of video images from the original video format to the first digitally compressed format is performed as each image is received from the video source device at the transmitting device.
63. (previously presented) The method of claim 51 wherein step of displaying the decompressed video stream of images on the display device to the user at the second location is performed as the video stream of images in the first digitally compressed format is being received at the second location.
64. (previously presented) The method of claim 51 wherein step of displaying the decompressed subset of images in an enhanced decompressed quality on the display device to the user at the second location is performed while the video stream of images in the first digitally compressed format continues to be received at the second location,

whereby the user views the retransmitted portion in higher quality while transmission of the low quality stream of video images continues.

65. (currently amended) A system for transmitting a video stream of images over a digital network from a first location to a second location in a first digitally compressed format and then retransmitting, based on one or more actions of a user at the second location, at least a portion of the video stream of images in a higher quality second digitally compressed format, the system comprising:

- a) a video source device at the first location for generating a plurality of images in an original video format as a stream of video images;
- b) a transmitting device connected to the video source device with a video connection for transferring the plurality of images from the video source device to the transmitting device; and
- c) a receiving device at the second location distinct connected to the transmitting device over a the digital network;

wherein:

- i) the first location is distinct and remote from the second location;
- ii) the transmitting device converts the stream of video images from the original video format to the first digitally compressed format,
 - (1) wherein the first digitally compressed format is a storage-efficient and transmission-efficient format having lower quality than the second digitally compressed format, and

- (2) wherein the frames of the video stream in the first digitally compressed format contain significantly less information than the second digitally compressed format;
- iii) the transmitting device transmits the video stream of images in the first digitally compressed format over the digital network from the transmitting device to the receiving device;
- iv) the receiving device:
 - (1) decompresses the video stream of images in the first digitally compressed format,
 - (2) displays the decompressed video stream of images on a display device to the user at the second location,
 - (3) marks a portion of the displayed stream of video images based on one or more actions of the user, and
 - (4) returns a request over the digital network to the transmitting device for an enhanced version of the marked portion of the video stream of images;
- v) the transmitting device:
 - (1) processes the request for an enhanced version of the marked portion of the video stream of images to determine a subset of images from the stream of video images in the original video format,
 - (2) converts at least the subset of images to the enhanced second digitally compressed format,

- (a) wherein the second digitally compressed format is a less storage-efficient and less transmission-efficient format having higher quality than the first digitally compressed format, and
 - (b) wherein the frames of the video stream in the second digitally compressed format contain significantly more information than the first digitally compressed format, and
 - (3) transmits the subset of images in the enhanced second digitally compressed format, corresponding to the marked portion of the video stream of images, over the digital network to the receiving device;
- vi) the receiving device:
- (1) decompresses the subset of images in the second digitally compressed format, and
 - (2) displays the decompressed subset of images in an enhanced decompressed quality on the display device to the user at the second location;
- whereby the user at second location views a low quality version of the stream of video images, marks a portion of the displayed video, and views the retransmission of the marked portion in higher quality.
66. (previously presented) A transmitting device for transmitting a video stream of images over a network from a first location to a receiving device a second location in a first digitally compressed format and then retransmitting, based on one or more actions of a user at the second location, at least a portion of the video stream of

images in a higher quality second digitally compressed format, the transmitting comprising:

- a) an interface for a video connection for transferring a plurality of images from a video source device in an original video format as a stream of video images;
- b) an interface for a digital connection to the network;

wherein:

- i) the first location is distinct and remote from the second location;
- ii) the transmitting device converts the stream of video images from the original video format to the first digitally compressed format,
 - (1) wherein the first digitally compressed format is a storage-efficient and transmission-efficient format having lower quality than the second digitally compressed format, and
 - (2) wherein the frames of the video stream in the first digitally compressed format contain significantly less information than the second digitally compressed format;
- iii) the transmitting device transmits the video stream of images in the first digitally compressed format over the to the receiving device, where the receiving device:
 - (1) decompresses the video stream of images in the first digitally compressed format,
 - (2) displays the decompressed video stream of images on a display device to the user at the second location,

- (3) marks a portion of the displayed stream of video images based on one or more actions of the user, and
- (4) returns a request over the network to the transmitting device for an enhanced version of the marked portion of the video stream of images;
- iv) the transmitting device processes the request for an enhanced version of the marked portion of the video stream of images to determine a subset of images from the stream of video images in the original video format,
- v) the transmitting device converts at least the subset of images to the enhanced second digitally compressed format,
 - (1) wherein the second digitally compressed format is a less storage-efficient and less transmission-efficient format having higher quality than the first digitally compressed format, and
 - (2) wherein the frames of the video stream in the second digitally compressed format contain significantly more information than the first digitally compressed format, and
- vi) the transmitting device transmits the subset of images in the enhanced second digitally compressed format, corresponding to the marked portion of the video stream of images, over the network to the receiving device, where the receiving device:
 - (1) decompresses the subset of images in the second digitally compressed format, and

(2) displays the decompressed subset of images in an enhanced decompressed quality on the display device to the user at the second location;

whereby the user at second location views a low quality version of the stream of video images, marks a portion of the displayed video, and views the retransmission of the marked portion in higher quality.

67. (previously presented) The transmitting device of claim 66 further comprising

- a) a storage device configured for receiving and storing the stream of images, generated by the source video device in the original video format; and
- b) a controller coupled to the storage device and configured for coupling to the receiving device for controlling transmission of the stream of images from the storage device to the receiving device, wherein the stream of images are transmitted to the receiving device in the first format and then a requested portion of the stream of images are transmitted to the receiving device in the second format.

68. (previously presented) The transmitting device as claimed in claim 66 wherein the source video device is a medical test device which is one of an ultrasound, a sonogram and an echocardiogram.

69. (currently amended) The transmitting device as claimed in claim 66 further comprising a network interface circuit coupled to the storage device and to the controller for communicating with the receiving device over ~~a~~the network.

70. (previously presented) The transmitting device as claimed in claim 66 wherein the network is an Internet Protocol network.

71. (previously presented) The transmitting device as claimed in claim 66 wherein received frames within the stream of images are displayed at the receiving device while a remaining portion of the stream of images is transmitted.
72. (previously presented) The transmitting device as claimed in claim 17 wherein the receiving device further includes a received storage device for storing the stream of images.
73. (previously presented) The transmitting device as claimed in claim 72 wherein the requested portion of the stream of images is stored in the second format and a remaining portion of the stream of images is stored in the first format at the received storage device.